

DISCUSSION OF THE AMENDMENT

Due to the length of the specification herein, Applicants will cite to the paragraph number of the published patent application (PG Pub) of the present application, i.e., US 2005/0199482, when discussing the application description, both in this section and in the Remarks section, *infra*, rather than to page and line of the specification as filed.

Claim 11 has been amended from passive to active format; the term “two or more” has been replaced with the equivalent --at least two--; and the term “prescribed specification” has been replaced with the equivalent to --preset composition--.

Claims 12 and 13 have been amended by deleting the superfluous “only.” Claims 16 and 17 have been amended by replacing “one or more” with the equivalent --at least one--, with concomitant change from plural to singular language. Claims 18-20 have been amended, without changing the scope of the claims, by deleting the term “method of using,” by changing from plural to singular format and , for Claim 20, deleting the superfluous “aromatic.”

New Claims 21-30 have been added. Claims 21 and 22 are supported by Claim 19. Claims 23 and 24 are supported by Claim 20. Claims 25 and 26 are supported in the specification at paragraph [0028]. Claims 27-30 are supported in the specification at paragraph [0029].

No new matter is believed to have been added by the above amendment. Claims 11-30 are now pending in the application.

REMARKS

The rejections of Claims 11-13 and 16 under 35 U.S.C. § 102(a) as anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as obvious over, DE 10022465 or WO 02/062733 (corresponding to DE 10105660); and of Claims 14-15 and 17-20 under 35 U.S.C. § 103(a) as unpatentable over the above-applied prior art, are respectfully traversed.

As a preface to the following remarks, Applicants note that DE 10022465 is equivalent to US 2003/0181772 (Meyer et al), and WO 02/062733 is equivalent to US 2004/0065538 (Bohner et al). Discussion of the applied prior art below refers to the applicable paragraph numbers of said US equivalents.

As recited in above-amended Claim 11, the present invention is a process for fractionating a starting mixture of at least two components by extractive distillation using a selective solvent in a dividing wall column, comprising carrying out the process in a dividing wall column having a dividing wall aligned in a longitudinal direction of the column and **extending to an upper end of the column** and dividing an interior of the column into a first region, a second region, and a lower combined column region, feeding the starting mixture into the first region, taking off a first top stream from the first region, and taking off a second top stream from the second region, with each of the streams having a preset composition, introducing the selective solvent in an upper part of the first region **or** in an upper part of the second region, and setting the flow of solvent into the first region or flow of solvent into the second region so that each of the preset compositions for the top streams are met. (Emphasis added).

Meyer et al is drawn to a process for the work-up of a C4 fraction, comprising the process steps of extractive distillation (I), selective hydrogenation over a heterogeneous catalyst (II), a crude 1,3-butadiene stream being obtained following process steps (I) and (II), and distillation of the crude 1,3-butadiene stream for isolating pure 1,3-butadiene (III),

wherein process steps (I) and (II) are carried out in a single column and process step (III) is carried out in a second column [0013]-[0017]. Meyer et al discloses further that the one column used for process steps (I) and (II) may be a dividing wall column as shown in Fig. 1 therein. However, Fig. 1 of Meyer et al is different from, and not suggestive of, the presently-recited dividing wall column. In Fig. 1 of Meyer et al, the dividing wall extends over only a limited portion of the length of the column, but does not extend to the upper end of the column. Indeed, reference number **1** of Fig. 1 is described as “an upper common column region” [0076]. As further described therein, **6** is a “lower common column region,” and divided subregions on both sides of the dividing wall in the middle portion of the column, are inflow sections **2a**, **2b** and **4** on the feed side of the column and offtake sections **3a**, **3b**, **5a** and **5b** on the withdrawal side of the column. Meyer et al neither discloses nor suggests eliminating, in effect, their upper common column region **1** by extending their dividing wall **T** to the upper end of the column. Thus, while in the presently-claimed invention, it is possible to feed the stream of selective solvent in either first region **1** or section region **2**, while leaving the other region **1** or **2** with no selective solvent feed, it is not possible to accomplish this objective with Meyer et al’s dividing wall column.

Bohner et al discloses a process for recovering crude 1,3-butadiene from a C₄ fraction by extractive distillation using a selective solvent in a dividing wall column wherein, *inter alia*, selective solvent streams are introduced **both** (emphasis added) in an upper subregion **A** and an upper subregion **B**, the subregions being divided by dividing wall **T** [0014]. As shown in Fig. 1 therein, a first solvent substream **3** is introduced into the upper region of an extractive scrubbing column **K**, so that countercurrent extraction takes place and gives a bottom stream **7** which is returned to the upper region of the subregion **A** of the dividing wall column [0062], and a second solvent substream **13** is introduced into the second subregion **B** of the dividing wall column [0063]. As described in the International Preliminary

Examination Report for the corresponding international application, by so distinguishing Bohner et al, “introduction into only a single sub-section . . . ensures that a combination of extractive and conventional distillation is carried out in a single column without a selective solvent, a particularly suitable combination for complex separation tasks.” Bohner et al neither discloses nor suggests eliminating one of these selective solvent streams.

It appears, based on the discussion of the rejection in the Office Action, that the Examiner may have misinterpreted the disclosures of the applied prior art. Thus, only Bohner et al discloses a dividing wall column in which the dividing wall extends to an upper end of the column, but Bohner et al requires introducing the selective solvent in the upper part of both regions in the upper end. Meyer et al has a single introduction of selective solvent in the upper part of their distillation column, but their dividing wall does not extend to an upper end of their column.

For all the above reasons, it is respectfully requested that the rejections be withdrawn.

The rejection of Claims 11-20 under 35 U.S.C. § 112, second paragraph, is respectfully traversed. The rejection would now appear to be moot except with regard to the terms “prescribed specification” and “suitable”. The term “prescribed specification” has been replaced with the equivalent --preset composition--. In other words, it is not important what the preset composition is, but only that the flow of the solvent is set into the first region or into the second region so that each of the preset compositions for the top streams are met. With regard to the term “suitable” in Claim 16, it is part of the term “thermodynamically suitable theoretical plates.” It is respectfully submitted that as this term is directed to persons skilled in the art, such persons would understand the scope and meaning of thermodynamically suitable theoretical plates.

For all the above reasons, it is respectfully requested that the rejection be withdrawn.

The objection to Claims 11-20 would now appear to be moot in view of the above-discussed amendment. Accordingly, it is respectfully requested that the objection be withdrawn.

All of the presently-pending claims in this application are now believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to pass this application to issue.

Customer Number

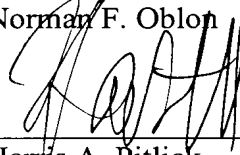
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